

## FIRST REPORT ON REPRODUCTION OF LESSEPSIAN RAGGED SEA HARE, *Bursatella leachii* (De Blainville, 1817) (MOLLUSCA: GASTROPODA) IN IZMIR BAY (AEGEAN SEA, TURKEY)

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**Abstract:** This paper shown reproduction of a Lessepsian immigrant, *Bursatella leachii* in the Izmir Bay, Aegean Sea.

**Keywords:** *Bursatella leachii*, Ragged Sea Hare, Lessepsian immigrant, Izmir Bay, Aegean Sea

**Özet:** **İzmir Körfezi (Ege Denizi, Türkiye)'nde Deniz Tavşanı, *Bursatella leachii* (De Blainville, 1817) (Mollusca: Gastropoda)'nin Üremesi Üzerine İlk Rapor**

Bu çalışma, bir Lesepsiyen göçmen tür olan *Bursatella leachii*'nin İzmir Körfezi (Ege Denizi)'nde ürediğini göstermektedir.

**Anahtar Kelimeler:** *Bursatella leachii*, Deniztavşanı, Lesepsiyen göçmen, İzmir Körfezi, Ege Denizi

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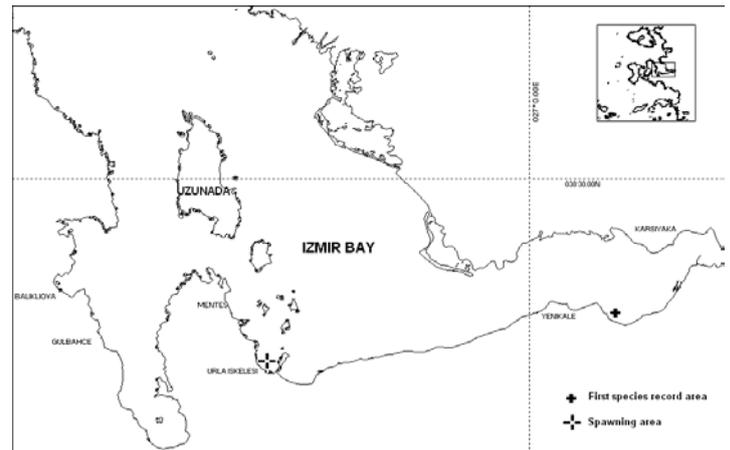
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The ragged sea hare, *Bursatella leachii* De Blainville, 1817, is a medium to large-sized (usually from 50 to 100 mm, up to 150 mm) benthic opisthobranch mollusc (Voss, 1980; CIESM, 2002). It is a circumtropical species found nearly worldwide in warm temperate to tropical marine environments and it is common in intertidal and subtidal sheltered bay and estuarine habitats with sand or muddy bottoms, and are a frequently encountered component of tropical and subtropical sea grass and mangrove communities (Lowe and Turner, 1976).

According to CIESM exotic atlas, mode of introduction is either by ships from the tropical Atlantic or via the Suez Canal (i.e. Lessepsian), and in the Mediterranean, *B. leachii* is very common from the eastern Mediterranean Sea to the Italian coasts in the western Basin, only known from an area between Taranto Sea, Sicily, Naples, Sardinia, Malta and Tunisia (CIESM, 2002; Zakhama-Sraieb et al., 2009; Gravili et al., 2010). Despalatovic et al. (2008) reported that this species was occasionally observed in the area of the middle Adriatic (around Split and Hvar Island) in the last two decades.

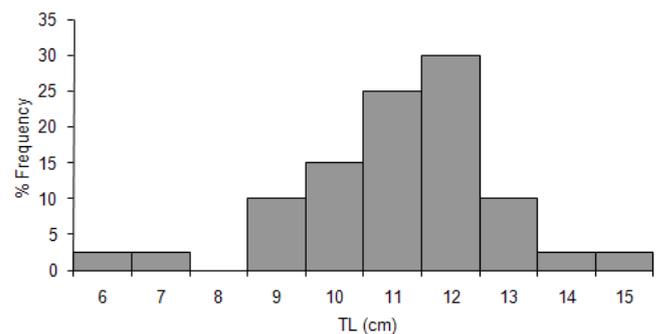
In Turkish coasts, this species was recorded first by Swennen (1961). Recently, nine specimens of *B. leachii* from Inciralti coastline, Izmir Bay were found by Kazak and Cavas (2007).

On December 07<sup>th</sup> 2010, more than 200 individuals of *B. leachii* aggregated for reproduction at a depth of about 50 cm in the Urla, Iskele fishing port (38° 21.9'N-26°46.3'E), Izmir Bay (Figure 1). A total of 40 specimens, randomly chosen were collected from hard substratum (i.e. on rocky place) by a scoop net for total length (TL, cm) measurements. After the measurements, live specimens were released back to the sea. During the sampling period, sea water temperature and salinity were measured by YSI 30/10 SCT meter.

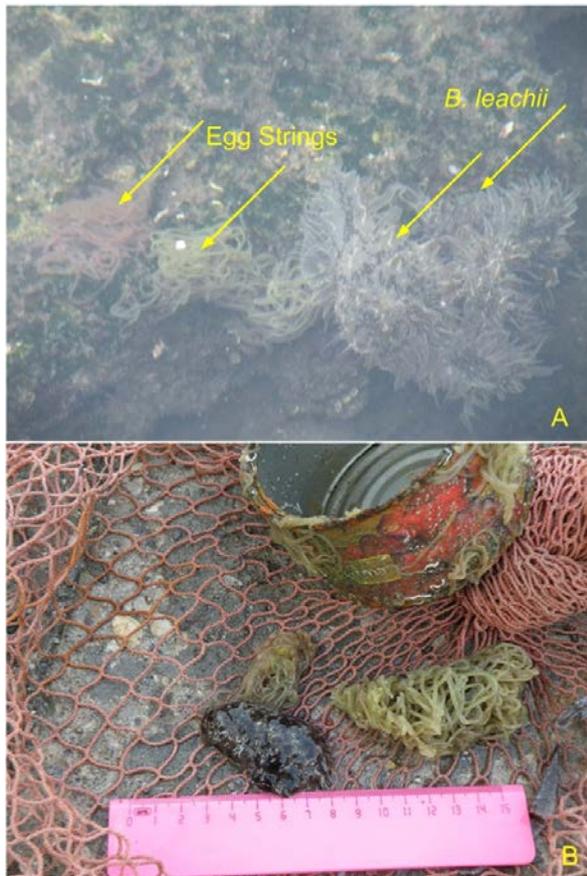


**Figure 1.** Sampling location of *B. leachii*

Total length distribution of *B. leachii* (Figure 2) was ranged from 6 cm to 15 cm (mean: 11.1 ±1.7 cm) and mean salinity and temperature of the reproduction habitat were 34.9 ±0.1‰ and 18.3 ±0.3°C, respectively. The shallow habitat consists of sand, rock, and patches of algae, *Cystoseira* spp. The breeders of *B. leachii* spawned their spaghetti-like benthic egg strings that were orange-yellow in color and on different materials such as stone, rock, brick and a piece of fish net even on tin can (Figure 3). However, we observed the reducing ragged sea hare in the area until end of the May 2011, and then they disappeared.



**Figure 2.** Length distribution of *B. leachii* in Urla, Izmir Bay



**Figure 3.** Egg strings of *B. leachii* in Urla fishing port, Izmir Bay, (A) egg strings and two specimens of *B. leachii*, (B) egg strings attached on a tin can

Kazak and Cavas (2007) reported that only existence of *B. leachii*, the mean size of  $9.2 \pm 0.21$  cm as a little smaller than that of this study, but no report on reproduction of ragged sea hare in Izmir Bay. Additionally, Çınar et al. (2005) mentioned from the *B. leachii*, referred to Swenney (1961), amongst the alien species on the coasts of Turkey. Therefore, the current study represents first report on the reproduction of a Lessepsian ragged sea hare, *B. leachii* in the Izmir Bay, Aegean Sea.

### Acknowledgements

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### References

- CIESM., (2002). CIESM Atlas of Exotic Molluscs in the Mediterranean (Available at <http://www.ciesm.org/atlas>).
- Çınar, M.E., Bilecenoglu, M., Öztürk, B., Katağan, T. and Aysel, V., (2005). Alien species on the coasts of Turkey, *Mediterranean Marine Science*, **6**:119-146.
- Despalatovic, M., Grubelic, I., Nikolic, V., Dragicevic, B., Dulcic, J., Zuljevic, A., Cvitkovic, I., Antolic, B., (2008). Allochthonous warm water species in the benthic communities and ichthyofauna of the eastern part of the Adriatic Sea. In: Briand, F., Ed. Climate warming and related changes in Mediterranean marine biota. CIESM Workshop Monographs No. 35, Monaco, 152 p.
- Gravili, C., Belmonte, G., Cecere, E., Denitto, F., Giangrande, A., Guidetti, P., Longo, C., Mastrototaro, F., Moscatello, S., Petrocelli, A., Piraino, S., Terlizzi, A., Boero, F., (2010). Nonindigenous species along the Apulian coast, Italy, *Chemistry and Ecology*, **26**: 121-142.  
doi: [10.1080/02757541003627654](https://doi.org/10.1080/02757541003627654)
- Kazak, M., Cavas, L., (2007). On the occurrence of *Bursatella leachii* de Blainville, 1817 in Izmir Bay, Turkey, *Mediterranean Marine Science*, **8**(2): 87-90.
- Lowe, E.F., Turner, R.L., (1976). Aggregation and trail-following in juvenile *Bursatella leachii plei* (Gastropoda: Opisthobranchia), *Veliger*, **19**: 153-155.
- Swennen, C., (1961). On a collection of Opisthobranchia from Turkey, *Zoologische Mededelingen*, **38**: 41-75.
- Voss, G.L., (1980). Seashore Life of Florida and the Caribbean. Dover Publications, Inc., New York, 199 p.
- Zakhama-Sraieb, R., Sghaier, Y.R., Charfi-Cheikhrouha, F., (2009). On the occurrence of *Bursatella leachii* De Blainville, 1817 and *Pinctada radiata* (Leach, 1814) in the Ghar El Melh lagoon (NE Tunisia), *Aquatic Invasions*, **4**: 381-383.  
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